LSA-PLUS® High Density modules

Switching equipment and distribution systems are being increasingly moved out of central exchanges and re-located closer to customers. The ongoing development of existing networks expanded portfolios of network suppliers and the implementation of IP services require additional space in the network structures in the "last mile" to customers. Several suppliers need to accommodate their equipment and the associated cabling in a limited space. Here, the topmost priority is to achieve the highest degree of flexibility, reliability and circuit density with simultaneous overvoltage protection in place.
In this section the LSA-PLUS® HD180 and LSA-PLUS® HDS will be discussed.

Figure 1: LSA-PLUS® HDS

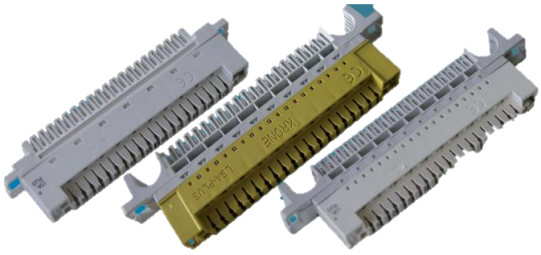

Figure 2: LSA-PLUS® HD180

LSA-PLUS® HD180

The LSA-PLUS® HD180 connection, disconnection and switching PROFIL modules meet the demand for high-density while delivering high-quality connectivity through LSA-PLUS® connection technology. The available space is increased by up to 100% over conventional connection systems when using LSA-PLUS® HD180 modules.

The LSA-PLUS® HD180 is suitable for use in all communication networks (POTS, DSL and IP networks), it's VDSL2-capable and it's used in outdoor enclosures with restricted space for cable termination.

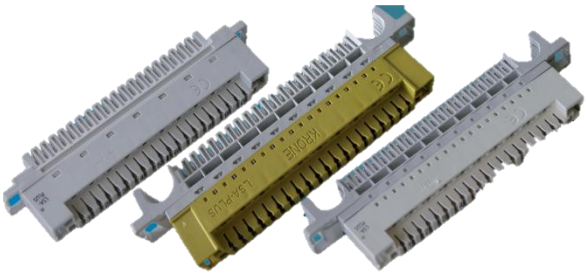

Figure 3: LSA-PLUS® HD180

Features and benefits

- Insulation displacement contacts on front and rear
- Test tap for permanent connection between incoming and outgoing copper cables
- Overvoltage protection available. The active equipment is protected against voltage surges by surge voltage protection magazines. This results in significant cost savings and high service availability
- Highest contact reliability using silver-plated IDC contacts
- Optimum circuit density with 12.5 mm mounting grid dimension increases the available space
- Optional wire routing elements allow wires to be uniquely assigned, thereby preventing incorrect circuit connections
- Uses standard LSA-PLUS® insertion tool
- Application for back mount frame and PROFIL rods with ø12 mm and 95 mm distance

Specifications

Design and configurations

Disconnection modules	Connection modules	Switching modules
10-pair modules with disconnection contacts for opening of isolating the line (normally closed contact)	10-pair modules with connection contacts (only parallel rapping possible)	10-pair modules with switching contacts (normally open contacts) to be used in conjunction with overvoltage magazines
Housing color: cream white	Housing color: grey	Housing color: yellow
For click-fixing to PROFIL rod system with 12 mm diameter and 95 mm rod spacing	For clicking into mounting brackets with predefined positioning to achieve maximum circuit density	For click-fixing to PROFIL rod system with 12 mm diameter and 95 mm rod spacing

General attributes & mechanical characteristics

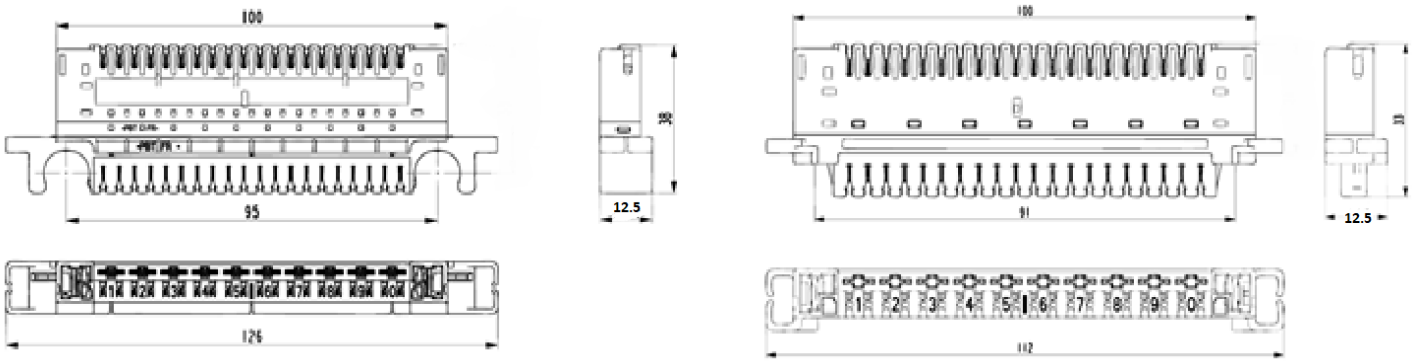

Figure 4: Left: LSA-PLUS® PROFIL rod module - Right: Back Mount Frame module

Figure 5: LSA-PLUS® HD180 cable head - 100 pair

Figure 6: Mounting aid for LSA-PLUS® HD180 PROFIL modules [MID: LSA-70143252-00]

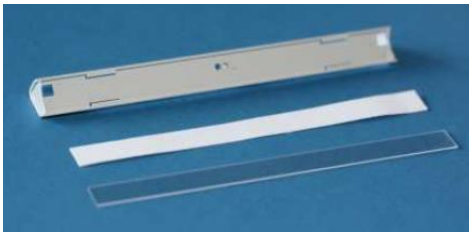

Figure 7: Hinged label holder for LSA-PLUS® HD180 modules, with clear cover [MID: LSA-70142058-00]

Figure 8: LSA-PLUS HD180 test cord, 2-pole [MID: 70142003-00]

Figure 9: LSA-PLUS HD180 test cord, 4-pole [MID: 70142004-00]

Figure 10: Test cord 7052, 2-lead with 4 mm double jack socket [MID: 60892141-00]

Product specifications:

Electrical properties

Insulation resistance:	≥ 5 x 10^4 MΩ at 500 V
Alternating voltage strength:	2 kV_{rms}
Impulse resistance voltage (1.2/50 µs):	3.6 kV
Contact resistance:	Insulation displacement contact: <2.5 mΩ
Conductor diameter, equipment wire:	0.35 mm to 0.63 mm
Surge voltage protection:	Can be inserted from the front
Flammability (module) acc. to UL94:	V0

Mechanical properties

Total module height:	33 mm
Vertical grid dimension:	12.5 mm
Material:	PBT
Contact surface:	Silver-plated
Standards:	ETS 300 019-1-1 Class 1.1 (weather-protected, partially temperature-controlled storage) IEC 60721 Part 3-3 usage (weather-protected, stationary) IEC 60352-4, solderless non-accessible insulation displacement connections

LSA – PLUS® HD180 modules

Catalogue Number	Product description
LSA-70142210-00	10-pair connection module, for mounting brackets
LSA-70142265-00	10-pair disconnection module, for mounting brackets
LSA-70142250-00	10-pair disconnection module, for PROFIL mounting *see comment below
LSA-70142270-00	10-pair connection module, for PROFIL mounting *see comment below
LSA-70142280-00	10-pair switching module, for PROFIL mounting *see comment below

* Mounting aid adapter needed for PROFIL rod modules installation [MID: LSA-70143252-00]

LSA – PLUS® HD180 - Accessories

Catalogue Number	Product description
LSA-70142058-00	Hinged label frame with labeling plate
LSA-70143325-10	Mounting bracket for 100 pairs
LSA-70143340-20	Mounting bracket for 200 pairs
65772812-0x	PROFIL rod for PROFIL mounting,
LSA-70141206-10	Cable head 100 pairs with (10) 10-pair connection modules (kit)
LSA-70141200-11	Cable head 200 pairs with (20) 10-pair connection modules (kit)
PRO-70192220-00	Surge voltage protection magazine, 180 v, 10 pairs with 3-pole arresters and fail-safe
PRO-70192220-20	Surge voltage protection magazine, 330 v, 10 pairs with 3-pole arresters w/o fail-safe
LSA-70143252-00	Mounting aid, for PROFIL modules only
60892141-00	Test cord 7052, 2-lead with 4 mm double jack socket
70142003-00	Test cord 2-lead, 0.2 m
70142004-00	Test cord 4-lead, 0.2 m, for disconnection modules only
LSA-70143221-00	Disconnection plug 1 pair, red, for disconnection modules only
LSA-70143249-00	Dummy plug, black
61963042-00	Marking cap, red
64172055-01	LSA-PLUS® insertion tool

LSA-PLUS® HDS Module

The LSA-PLUS® HDS module meets the demand for high-density while delivering high-quality overvoltage protection through LSA-PLUS® or third-party connection technology.

The module is suitable for use in all communication networks (POTS, DSL, VDSL2, G.Fast and IP networks). The LSA-PLUS® HDS module can also be used in outdoor shelters to protect DSLAM or MSAN equipment in next generation networks against lightning strikes and overvoltage.

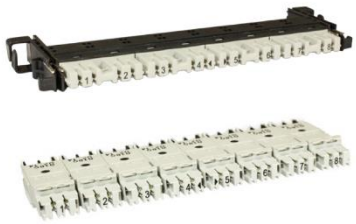

Figure 11: LSA-PLUS® HDS module

Features and benefits

- Pluggable 8-pair system and single pair cable side
- Pre-terminated system side configurations
- Different functionalities can be integrated in cable side module (OVP, Splitter, Relay switches,...)
- Single pair configuration allows efficient OVP replacement as well as individual service changes
- LSA-PLUS® Insulation displacement contacts on front and rear
- Built-in surge voltage protection. The active equipment is always protected against voltage surges by integrated single pair surge voltage protection plugs. This results in significant cost savings and high service availability.
- Highest contact reliability using silver-plated IDC contacts
- Optimum circuit density with 13.5 mm mounting grid dimensions; increases available space
- Star quad cable management guides for assembly of reliable, robust cable harnesses
- Compatible with all wiring practices; uses standard LSA-PLUS® insertion tool

Figure 12: 8-pair connection module 8-pair base with 8 one-pair modules [MID: HDS-70422400-00]

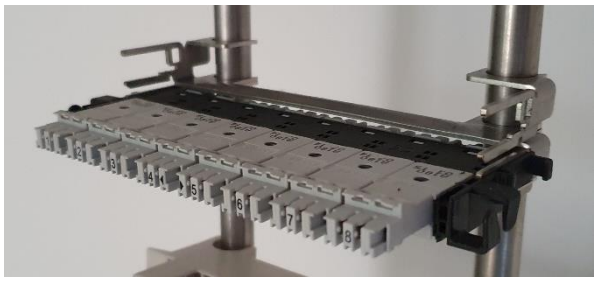

Figure 13: PROFIL rod mounting bracket for LSA-PLUS® HDS modules [MID: HDS-70423455-00]

Figure 14: Pre-cabled cable head

Figure 15: Single pair G.fast 212 MHz splitter for LSA-PLUS® HDS modules [MID: HDS-70422620-00]

Specifications

General attributes & mechanical characteristics

Product specifications:

Electrical Properties

Insulation resistance:	>5 x 10^4 MΩ at 500V
Alternating voltage strength:	2 kVrms
Impulse resistance voltage (1.2/50 µs):	3.6 kV
Contact resistance:	5 mΩ
Conductor diameter, equipment wire:	0.35 mm to 0.63 mm
Surge voltage protection:	420V, 2.5 kA, without fail-safe (upon customer request: 230 V, 5 kA, with fail-safe) Other options upon request

Mechanical Properties

Flammability (module) according to UL94:	V0
Dimensions (H x W x D):	10 mm x 134 mm x 61 mm
Vertical grid dimension:	13.5 mm
Contact surface:	Silver-plated
Number of plug-in cycles:	20
Number of re-terminations:	50
Temperature range operation:	-5° to +80° C
Temperature range storage:	-40° to +90° C

LSA-PLUS® HDS Modules

Order number	Product description
HDS-70422400-00*	8-pair connection module 8-pair base with 8 one-pair modules including OVP.
HDS-70423455-00	Metal clip for PROFIL rod mounting for 8-pair connection module (kit of four pieces)
HDS-70422620-00	Single pair G.fast 212 MHz splitter for LSA-PLUS® HDS modules
Additional accessories	
HDS-70422410-00	2-pair HDS test cord
HDS-70422412-00	Label holder for mounting bracket

* Configurations without OVP or different functionality on request.

LSA-PLUS® HDS cable heads

Order number	Product description
On customer request*	For 48 pairs - Accommodates 6 modules + 1 label holder – height: 95mm – includes mounting hardware
On customer request*	For 64 pairs - Accommodates 8 modules + 2 label holder positions – height: 135mm – includes mounting hardware
On customer request*	For 72 pairs - Accommodates 9 modules + 1 label holder – height: 135mm – includes mounting hardware
On customer request*	For 96 pairs - Accommodates 12 modules + 1 label holder – height: 175mm – includes mounting hardware

*Customized pre-cabled solutions available